The

Monthly Evening Sky Map

A JOURNAL FOR THE AMATEUR — FOUNDED BY THE LATE LEON BARRITT
—NORTHERN AND SOUTHERN HEMISPHERE—

ALSO A STAR, CONSTELLATION AND PLANET FINDER MAP ARRANGED FOR THE CURRENT MONTHS—OCT. - NOV. - DEC. MORNING AND EVENING — AND PRACTICAL ANYWHERE IN THE WORLD

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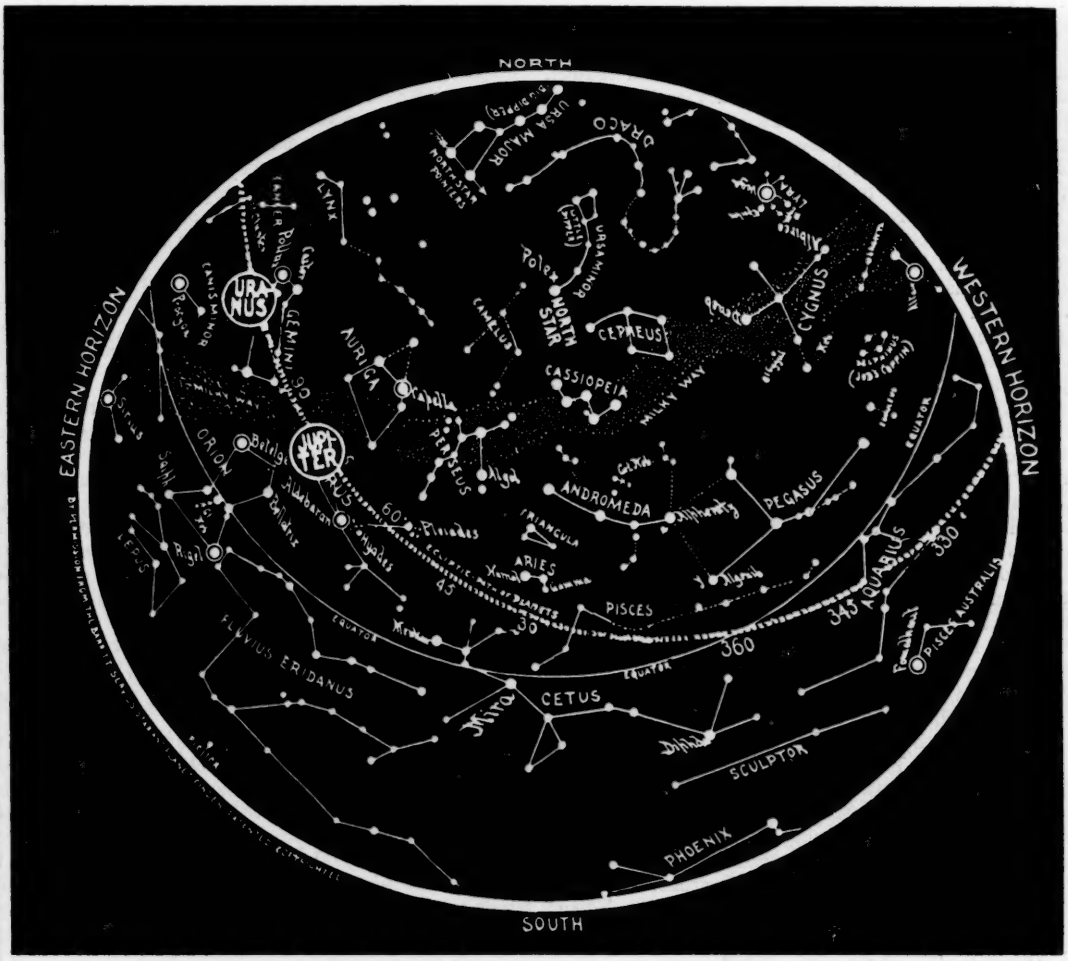
EVENING SKY MAP FOR DECEMBER



Face South And Hold The Map Overhead. The Top North And You Will See The Stars And Planets Just As They Appear In The Heavens. The Arrow Through The Two Stars In The Bowl Of The Big Dipper Points To The North Star. The Star At The End Of The Little Dipper.

AT 9:00 P. M., DEC. 1; 8:00 P. M., DEC. 15; 6:30 P. M., DEC. 31.

This map is arranged specifically for Latitude 40 North—New York—but is practical for ten or fifteen degrees north or south of this latitude anywhere in the United States, the southern portion of Canada and the northern portion of Mexico and for corresponding latitude in Europe.

Written for the Monthly Evening Sky Map
Republished by request

A WORLD GOES BY "IT'S NO DESERT OF BARREN ROCK" CRIED SCHIAPARELLI. "IT IS ALIVE!"

by ROBERT OTREN

July 27th, 1939 a battery of telescopes converged upon Mars as Earth came abreast it.

It was the zero hour. By now, if ever, would the grim Martians depicted by Mr. Welles have launched across the 50,000,000 miles of intervening no-man's land to attack the sleeping Earth. Certainly they would fight savagely to change from their old, barren world to the hot, lush one sunward of them. They must conquer—or perish in Mars' dried-up seabeds as the desert winds blew ever more bitter about them.

Their officers, through telescopes, could have studied the waning blue crescent of Earth until it neared conjunction and was seen no longer. Its blanketing clouds would delight them, marking it drenched by heavy rains, so rare on dry, parched Mars. They would map the mottled blue which covered three-fourths of the surface, and sparkling as it caught the sunlight, and hardly dare believe it an endless ocean. Those yellow and reddish deserts they knew too well, though they would wonder why they are not reclaimed by canals cut through them from the bordering seas. They would compare the polar caps in which Earthlings lie buried through the winter, to their own. But as the caps melted, they would look for a green wave to spread from it through the bordering brown areas. Instead, the green wave would come from the equator, and if they continued watching, they would be surprised that the tropical belt did not die as summer left. They of a worndown world might catch the long shadows of mountains as Earth went through its phases and measure them at the terminator. With the great magnification possible in their scanty, cloudless atmosphere, they might detect the great Ganges and Indus winding from the melting Himalayan glaciers through the northern plains of India, by its strip of canal-watered fields. Probably beyond the resolving power of their telescopes would be sprawling Pekin, London, and New York, and so they would conclude it was still too early for Earthlings to have risen on the rain-drenched surface.

They would drop down through the clouds prepared for an alien world, but before the lethal Earthmen were upon them, they would be surprised at its similarity. No other planet more resembles Earth, Herschel wrote, and Earth will grow ever more like it. Its naked Rockies will wear down and its great Saharas will spread as endless and terrible as the Martian. And like the ancient seas, now recalled only by names left over from a generation who did not realize their true nature, its seas will dry up, leaving seabeds yawning emptily.

But ruddy Mars, its 4200 mile disk dwarfed by 36,033,000 miles of space, hangs before our telescopes, strangely alive. Dark upon its background of orange deserts are the changing patches of green. Turned Earthward is its dazzling southern polar cap. When Schiaparelli saw it thus, he cried, "It's no desert of barren rock; it's alive!"

Sir William Herschel was first to watch as its Southern polar cap melted entirely when inclined sunward, as it turned and swelled through its winter months, so that when he saw it again, it was grown as before. A cap 200 miles across lasts from the northern cap through the summer. "The snowy regions," wrote Schiaparelli, "are then seen to be successively notched at their edges; black holes and huge fissures are formed in their interior, great isolated fragments many miles in extent stand out from the principal mass, dissolve, and disappear a little later." Lowell found the rifts always appear in the same places, in darker regions, and suggested they might be buried vegetation which hurried the melting. As the cap retreats, its edge is tinged with blue, which responed as water to a polar-iscopic test of Pickering's. Wallace suggested the thin polar snows are hidden beneath dense fog banks, which is why the caps seem to project outward from the disk.

MR. ORR DOES SOME FIGURING

The South Pole, now tipped sunward, is dwindling and, as Pickering was surprised to learn, the nearby brown areas will soon change to solid green. The change spreads in a wave, the wane following several months behind, reaches the equator and dies out in the north. From the north in its spring season will come a like wave, though as the great seabeds lie to the south, it will break through the northern deserts in narrow strips. Lowell's contention that it represents vegetation watered by melting snows, adopted by most observers, will be challenged by Dr. Millman of the Dunlap Observatory, who at this opposition is repeating his spectroscopic study of the green regions.

Until Schiaparelli in 1877, the keenest observer of his day, chanced upon faint streaks across the deserts, those darker areas were assumed to drink up all the scanty freshit. "There are on this planet," he described after checking his discovery, "traversing the continents, long dark lines which may be designated as canals, although we do not yet know what they are. These lines run from one to another of the somber spots that are regarded as seas, and form over the lighter, or continental region, a well-defined network." It caused a sensation, but others could not verify his discovery.

On December 26, 1879, as he looked at the Nile canal, he found it twins, two canals where December 24 he had seen but one. In 1882, after finding all the previous canals and some new ones, he watched the Nile. January 11 it doubled again. The canal Jamuna, in the center of the disk followed, and then successively twenty more. He was convinced—and baffled. Most of the canals remain single, but a few constantly or occassionally, in the months of the great northern inundation are sometimes in a few hours paired along their entire length, forming two uniform, parellel canals. One of the new canals is often on the old, and sometimes the two straddle the former, which is now invisible. The distance between the pair varies from 360 miles to the smallest division the telescope can make out, less than thirty miles. "All that we may hope," Schiaparelli admitted, "is that with time the uncertainty of the problem will gradually diminish, demonstrating, if not what the geminations are, at least what they cannot be."

The inevitable Mr. Orr read his paper, published in the British Astronomical Journal. Schiaparelli had thought the canals natural, but Mr. Orr must prove it to him that Martians could not have dug it, so therefore it did not exist. The canals should be 70 ft. deep, therefore requiring 200,000,000 men to labor 100 years in the construction using most of the 409,000,000 population which, as Mr. Orr sanely concluded, is an obvious impossibility. The senior assistant of the Royal Observatory presided at the meeting: "He hoped that Mr. Orr's statistical, but nevertheless amusing and instructive paper might prove one more nail in the coffin of a very absurd idea which had certainly got most undue currency, namely that the canals of Mars could possibly be the work of human agents."

Using his small refractor, Schiaparelli kept up his discoveries nine years under the pure Italian skies, while all trace of the network escaped other observers. Finally,

in 1886, Perrotin at Nice also detected them, and at each favorable opposition since they have been observed by most of the great telescopes. Later a few of the more conspicious canals were traced on older drawings, some by Dawes. The Nilosyrtis, from 120 to 180 miles wide, had been seen for almost a hundred years before Schiaparelli.

LOWELL INTRODUCES THE MARTIANS

The youthful Lowell, who was to trace the canals all over the surface, had just graduated from Harvard when the Italian astronomer made his first announcement. Near Flagstaff, on the clear Arizona highlands, Lowell set up the last and best telescope Clark ever made. Once when Mars was in low latitude, Lowell had the telescope moved to Mexico and remounted.

Lowell came to be the leading authority on Martian observations, though it was long before any would support him fully. "We find, in the first place," he summed up his grandest claim, "that the broad physical conditions of the planet are not antagonistic to some form of life; secondly, that there is an apparent dearth of water upon the planet's surface, and therefore, if beings of sufficient intelligence inhabited it, they would have to resort to irrigation to suport life; thirdly, that there turns out to be a network of markings covering the disk precisely counterparting what a system of irrigation would look like; and lastly, that there is a set of spots placed where we should expect to find the lands thus artifically fertilized, and behaving as such constructed oases should."

"Any attempt," came Wallace's answer, "to make that surplus, by means of overflowing canals, travel across the equator into the opposite hemisphere through such a terrible desert region and exposed to such a cloudless sky as Mr. Lowell describes, would be the work of a body of madmen rather than intelligent beings." They would rather widen the borders to which the natural overflow carried it, he added.

It was the change in the estimate of the Martian temperature that has allowed other observers, like Pickering, to accept Lowell's beliefs. Physicists, using the relative distance of Mars from the sun, had assigned it a mean temperature of about 35° F. At Flagstaff in 1924 in the hands of Dr. Coblentz and Dr. Lampland, and at Mt. Wilson, Profs Pettit and Nicholson, the thermocouple registered an average at the north pole in winter,—94° F, at noon at the equator—57° F and from 32° to 59° F above the melting snows of the South pole. "The noonday temperature on the surface of Mars will support life on Mars as we know it on the Earth." came as a favorable verdict for Lowell. Dr. Coblentz suggests any Martians would have to thaw out every forenoon, and the reverse at night.

Lowell once mentioned that because of the lesser Martian gravitation, the Martians could be three times as large as would be safe on Earth. So the dramatist Welles might have pictured the Martians, possibly squat and toadlike with cold, leathery bodies and staring, unblinking eyes, spilling down into frightened United States only to be glued to the alien land by increased gravitation. If they did not conquer, they might have to start life anew submerged in the seas where the water would help support them, unwieldy invaders from a smaller planet.

A Parisian lady presented 100,000 francs to the Academy of Science for communication with the Martians, which has never been claimed. Perhaps the Martians signaled Earth when only reptiles crept through its shallow seas, and concluded Earth was uninhabited. Perhaps if they ever did rise they have given up the struggle their fields and their last tracks are drifted over by the red desert sands.

"The drying up of the planet is certain to proceed," predicted Lowell, "until its surface can support no life at all. Slowly but surely time will snuff it out. When the last ember is thus extinguished the planet will roll a dead world through space, its evolutionary career forever ended." Sir James Jeans also has looked forward to when Earth will grow old like Mars. May we not migrate to Venus which will retain its seas even longer than Earth he asks. Venus could tremble in turn before an invasion by desperate Earthlings.

But ruddy Mars, its 4200 mile disk dwarfed by 36,033,000 miles of space, hangs before our telescopes, strangely alive. Dark upon its background of orange deserts are the changing patches of green. Turned Earthward is its dazzling southern polar cap.

What more can observers now tell us?

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AMATEUR'S FORUM

By IRVING L. MEYER, M. S.

October, 1953

THE SUN: continues a south-eastwardly march which takes it from Virgo into Libra. Distance decreases from 93.0 to 92.2 million miles during the month.

THE MOON: is farthest from the earth (apogee) the 6th at 255,000 miles distance, and is closest to the earth (perigee) the 21st at 223,000 miles.

The Moons Phases E.S.T.)

New Moon	October 7 at 7:40 P.M.
First quarter	15 at 4:44 P.M.
Full Moon	22 at 7:56 A.M.
Last quarter	29 at 8:09 A.M.

MERCURY: moves from Virgo through Libra into Scorpio in the evening sky. Greatest elongation east of the Sun, 24° 18' is reached the 23rd, so for a few days before and after this date, Mercury will be visible low in the west, in the twilight zone, just after sunset. At that time, magnitude will be 0.1, apparent diameter will be 6½", and the planet will be 64% illuminated—appearing gibbous in the telescope. Distance the 1st is 122 million miles, and the 31st is 82 million miles.

VENUS: is magnitude 3.4, as it passes from Leo into Virgo in the morning sky. Though no longer idealy suited to observation, it still can be seen readily in the morning twilight, close to the eastern horizon. Distance the 1st is 130 million miles, against 143 million miles the 31st. It is in very close conjunction with Mars on the 4th, being only 2' south of that planet, and about 5 magnitudes brighter.

MARS: in the morning sky, is not well placed for observation. It moves from Leo into Virgo, and appears as a star of magnitude 2. Distance is slowly decreasing from 231 million miles the 1st to 216 million miles the 31st. Apparent diameter is only 4".

JUPITER: is a brilliant object in the late evening sky in Taurus. It rises well before midnight, and is well worth watching with any sort of optical aid. Even binoculars will reveal its flattened disc and brighter satellites. A telescope will show detail on the planet's disc. On the 1st, magnitude is 2.0, equatorial diameter is 41", and polar diameter is 38"; on the 31st magnitude is 2.2, equatorial diameter is 45", and polar diameter is 42". Distance the 15th is 425 million miles.

SATURN: moves slowly eastwardly in Virgo. It is in conjunction with the Sun on the 23rd, thereafter entering the morning sky. Too close to the Sun all month to be observable. Distance the 23rd (maximum) is 999 million miles.

URANUS: is pretty well placed for observation in Gemini, also in the late evening sky. Magnitude is 6, making it just visible to the naked eye on a good night. A power of 50x on a 6 inch telescope will reveal its neat, round, 4"-diametr disc. Distance the 15th is 1739 million miles.

NEPTUNE: in Virgo, also enters the mornisg sky this month as conjunction with the Sun occurs the 17th. Not observable all month. It is farthest from the earth the 16th at 2908 million miles.

AMATEUR'S FORUM

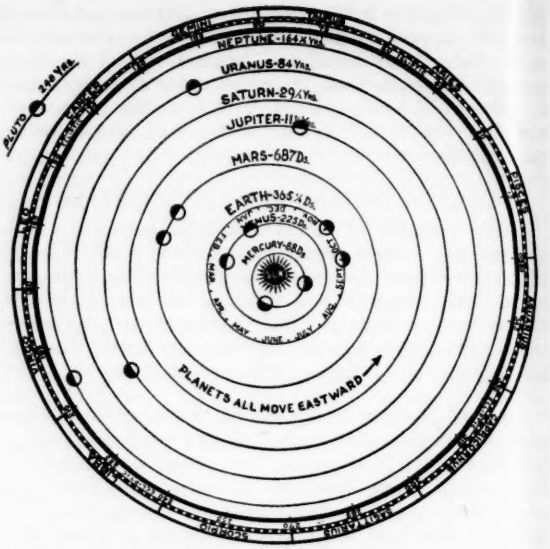
November, 1953

By IRVING L. MEYER, M. S.

AMATEURS FORUM NOVEMBER, 1953

THE SUN: travels from Libra into Scorpio. Distance the 1st is 92.2 million miles, and the 30th is 91.6 million miles.

There is a transit of Mercury over the Sun's face on the 14th. This transit will be visible, in whole or in part, in Western Europe all but the eastern part of Africa, the Atlantic Ocean, North America, South America, Antarctica, and the central and eastern parts of the Pacific Ocean. All phases will be visible in the United States. The average Eastern Standard Times of the various contacts for the United States are:



Orbits and Heliocentric Movements of the Planets for Oct., 1953

Ingress, external contact	November14, at 1036.8 AM
Ingress, internal contact	14 at 10:40.5 AM
Egress, internal contact	14 at 1:08.5 PM
Egress, external contact	14 at 1:12.1 PM

These times should be accurate within about one-half minute for any location in the United States; the variation for location outside the United States will be very slight. The position angle (measured from the north point of the Sun's disc eastwardly) of ingress is approximately 51°; of egress, 356°. The telescope will reveal Mercury as a neat, round dot on the Sun's surface during the transit. Be sure to reduce the Sun's light and heat when using any optical aid on the transit, or permanent harm to the eyes may result.

THE MOON: is at apogee the 2nd at 252,000 miles; at perigee the 18th at 225,000 miles; and at apogee again the 30th at 252,000 miles.

The Moons Phases E.S.T.)

New Moon	November 6 at 12:58 PM
First Quarter	14 at 2:52 AM
Full Moon	20 at 6:12 PM
Last Quarter	28 at 3:16 AM

MERCURY: moves in the Scorpio- Libra area all month. It is an evening star until conjunction with the Sun on the 14th and thereafter enters the morning sky. On the last few days of the month Mercury will be visible in the morning sky, just before sunrise, low in the east. At that time the planet will be about one-half illuminated, as seen from the earth, and magnitude will be about 0.0. Minimum geocentirc distance, the 14th, is 63 million miles. For details of the transit of Mercury, see under THE SUN above.

VENUS: moves from Virgo into Libra in the morning sky. Now not very well located for observation, it nevertheless, can afford the means of pointing out Mercury, as these two planets will be in conjunction on the 23rd, with Venus south of Mercury a little more than one degree. Venus is by far the brighter of the two. Geocentric distance of Venus the 1st is 143 million miles, and the 30th is 152 million miles.

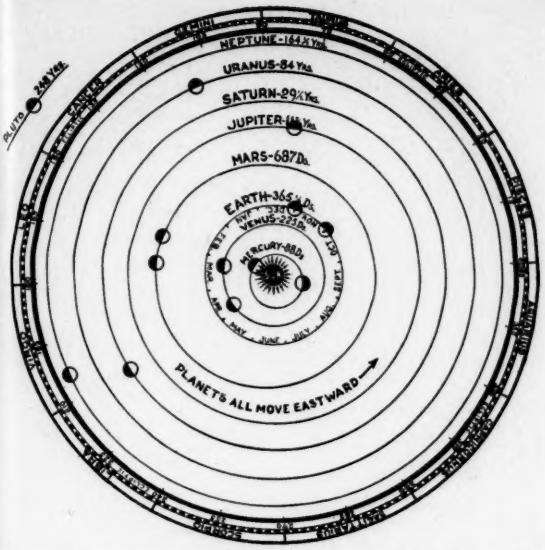
MARS:: in the morning sky in Virgo, now rises sufficiently ahead of the Sun to be observable, but it is still relatively distant and faint. Distance, the 1st is 216 million miles; the 30th, 196 million miles.

JUPITER: in Taurus, is ideally situated for observation, it rises shortly after sunset, and remains above the horizon all night. Distance the 15th is 392 million miles.

SATURN: in Virgo, is too close to the Sun for observation. Distance the 15th is 993 million miles.

URANUS: is in Gemini, and well placed for observation. It rises well before midnight. Magnitude is 6. Distance the 15th is 1691 million miles.

NEPTUNE: is also in Virgo, and is too close to the Sun for observation. Distance the 15th is 2864 million miles.



Orbits and Heliocentric Movements of the Planets for Nov., 195

NOTE: The planets are shown in their respective orbits. Two positions, one for the first, and one for the last day of the month, are given for Mercury, Venus and Mars. The arrow indicates the last day of the month. Jupiter, Saturn, Uranus and Neptune are shown in the mean position for the current month.

PLANETARY CONFIGURATIONS

Eastern Standard Time

October, 1953

Oct. 3— 8:— PM Conjunction, Mercury and Saturn; Mercury south 3° 32'
Oct. 4— 1:— AM Conjunction, Venus and Mars; Venus south 0° 2'
Oct. 5— 8:13 AM Conjunction, Mars and Moon; Mars north 5° 9'
Oct. 5—10:04 AM Conjunction, Venus and Moon; Venus north 5° 14'
Oct. 5—11:— AM Mercury in aphelion
Oct. 8— 6:49 PM Conjunction, Neptune and Moon; Neptune north 7° 8'
Oct. 9— 5:15 AM Conjunction, Saturn and Moon; Saturn north 7° 45'
Oct. 9— 8:16 PM Conjunction, Mercury and Moon; Mercury north 3° 23'
Oct. 10— 6:— AM Venus in perihelion
Oct. 14—10:— PM Jupiter stationary in Right Ascension
Oct. 16—12:— PM Quadrature, Uranus and Sun
Oct. 17— 2:— AM Conjunction, Neptune and Sun
Oct. 23—11:— AM Mercury greatest elongation east, 24° 18'
Oct. 23— 4:— PM Conjunction, Saturn and Sun
Oct. 25— 7:— PM Mercury greatest heliocentric latitude south
Oct. 25— 8:— PM Mars in aphelion
Oct. 26— 6:56 AM Conjunction, Jupiter and Moon; Jupiter south 3° 14'
Oct. 28— 7:47 AM Conjunction, Uranus and Moon; Uranus north 0° 2'
Oct. 29—12:— PM Uranus stationary in Right Ascension

PLANETARY CONFIGURATIONS

Eastern Standard Time

November, 1953

Nov. 1— 1:— AM Venus greatest heliocentric latitude north
Nov. 3— 4:14 AM Conjunction, Mars and Moon; Mars north 6° 22'
Nov. 3—10:— PM Mercury stationary in Right Ascension
Nov. 4— 9:55 PM Conjunction, Venus and Moon; Venus north 7° 4'
Nov. 5— 3:06 AM Conjunction, Neptune and Moon; Neptune north 7° 9'
Nov. 5— 5:52 PM Conjunction, Saturn and Moon; Saturn north 7° 41'
Nov. 7— 2:— AM Conjunction, Venus and Neptune; Venus south 0° 7'
Nov. 7— 7:56 PM Conjunction, Mercury and Moon, Mercury north 2° 26'
Nov. 13— 7:— PM Mercury in ascending node
Nov. 13—11:— PM Conjunction, Venus and Saturn; Venus south 0° 52'
Nov. 14—— — Transit of Mercury
Nov. 14—12:— PM Inferior conjunction, Mercury and Sun; Mercury north 0° 15'
Nov. 18—10:— AM Mercury in perihelion
Nov. 22— 1:34 PM Conjunction, Jupiter and Moon; Jupiter south 3° 12'
Nov. 23—12:— PM Conjunction, Mercury and Venus; Mercury north 1° 12'
Nov. 23— 2:— PM Mercury stationary in Right Ascension
Nov. 24— 4:23 PM Conjunction, Uranus and Moon; Uranus north 0° 16'
Nov. 28— 5:— PM Mercury greatest heliocentric latitude north

THE STARS AND CONSTELLATIONS FOR OCTOBER

The constellation Lyra with its beautiful first magnitude star Vega, is moving westward from our zenith, to be succeeded by the Northern Cross —Cygnus. Andromeda and Pegasus, forerunners of winter's glorious star groups—Taurus, Orion, Gemini and Leo are sweeping grandly up from the east into the evening sky. Andromeda and Pegasus form a group not unlike the Big Dipper, for which they are sometimes mistaken. Pisces and Aquarius, now in view in the east, have no large stars, and consequently are somewhat difficult to pick up. Capricornus, nearby, is also composed of small stars, but they are more strikingly grouped and easily recognized. The bright first magnitude star Altair, in the constellation Aquila, will be found due North of the two stars at the extreme end of Copernicus, while the two stars at the easterly end of this group point the way to the first magnitude star Fomalhaut. North-east of Altair lies the little group known as Delphinus more commonly known as "Job's Coffin." The position of the great nebula in Andromeda is shown on the maps in this issue. This is a most interesting telescopic object and once located can be seen with the naked-eye. The star in the foot of the Northern Cross (Cygnus) is a beautiful double easily separated with a lower power telescope. The star cluster in Hercules, one of the largest in the heavens, is a most interesting telescopic object. It is on the western edge of the square in that constellation and its position is clearly shown on the Mercator Projection map in this issue. Cassiopeia can easily be recognized in the Milky Way near the Pole Star as it clearly forms an elongated letter "W."

Stars are spoken of by astronomers as of various magnitude and the popular impression is that this refers to the size of the stars, which is erroneous. It applies to their brilliancy; the actual size of but few stars are known. In the most powerful telescope a star is only a point of light, it is not a magnified particle, its brightness alone being accentuated. The stars are all suns like our great luminary, which if viewed from a star would appear as a mere point of light—a scintillating star, and the earth and our planetary system would be completely lost to view. So it is not improbable to suppose that these distant suns have their own planetary systems that we cannot see.

IS UNIVERSE EXPANDING?

By Campbell McArthur

The most important question in present-day astronomy is "Is the universe really expending ?" Do the red shifts in the nebular spectra represent a slight degeneration in the light that has traveled so far through space or are they really caused by runaway nebulae ? Hubble, whose work first put the question, is engaged in a search for fresh observational evidence. Meanwhile Harlow Shapley reviews all the available evidence in the "Proceedings of the National Academy of Science." His conclusion, that there is at present no grounds for questioning the reality of the recessional speeds of the nebulae, will probably remain our best answer to the question until observational proofs one way or

LIGHT YEAR

Distances within the solar system, although extensive, can be easily stated in miles; but another yard-stick is necessary to indicate distances in stellar realms. It is known as a 'light-year"; the meaning is the mileage covered by a ray of light during a period of twelve months, at the speed of 186,000 miles a second—to write it, place 12 ciphers after the figure 6-or 6,000,000,000,000 miles.

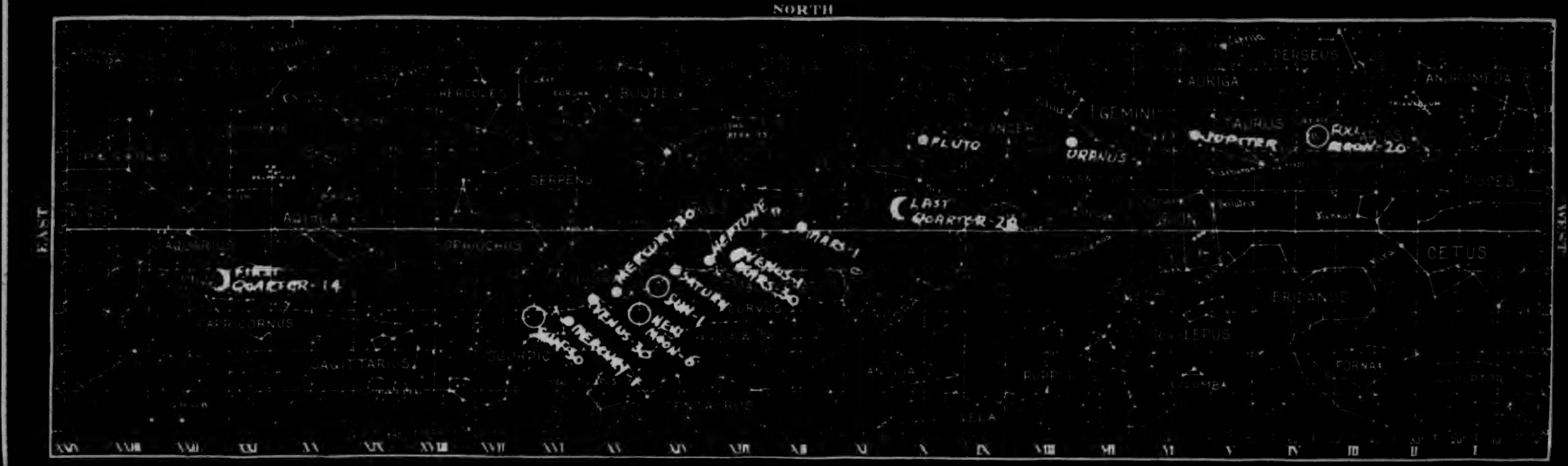
This is of course an incomprehensible number, but we may gain a little better idea of the distance involved by using the following illustration. The sun with his family of planets and their satellites, is rushing through space at the speed of 12 and a fifth miles a second, relative to the stars, so each year covers about 400,000,000 miles.' Therefore, 15,000 years must pass before the solar system can cover the milage of just one light-year.

A DELIGHTFUL EVENING OF FUN

Barritt's Celestial Globe Projection, size 14 x 22, with 18 planet disks, affording you an opportunity of locating and plotting the sun and planets, a novel pastime; send 35 cents, coin or stamps.

A MERCATOR PROJECTION OF THE STAR FIELD FOR 50 DEGREES NORTH AND 65 SOUTH OF THE EQUATOR

The Star Field makes an apparent complete revolution westward every 24 hours, hence the hourly division from I to XXIV, but this has no relation to the time that any portion of the map is in view
Practical as a Star, Constellation and Planet Finder for the current months—November-December, 1953—Anywhere in the World.
Showing also the position of the Sun at the beginning and ending of the month and the position of the Moon at its several phases



THE PERSEIDS
MYSTERY STARS IN CASSIOPEIA

There are two mystery stars in the familiar "W" of Cassiopeia. The more important is gamma. Up to the fall of 1936 gamma seemed an ordinary star, though some odd changes were noticed in its spectrum. Its magnitude was always assumed to be 2.2. On October fifth of that year it was discovered to be half a magnitude brighter than usual. Since then it has fluctuated irregularly, working up to a maximum of 1.2 in June, 1937. After that it dropped steadily, save for a brief secondary maximum of 1.5 magnitude, last September. This summer it was lower than magnitude 2.4 its variations, especially during the rise, have been nervous, and it has often jumped half a magnitude in a single evening. (Two photographic observations given in the December, 1936 "Sky Map" show a change of 0.11 magnitudes in less than an hour.)

A month after the announcement of gamma's unexpected rise Dr. Felix de Roy, writing in "L'Astronomie," showed from past observations that the star has been a variable all along. Measures taken during the construction of the Harvard Photometric Catalogue range from magnitude 2.1 to magnitude 2.4. Observations during November and December of 1894 show the star rising from 2.3 to 1.7 and returning to 2.3. It seems improbable that such large changes should take place in photometric measures unless the star were really varying. More recent photometric obsevations show that the star has been slightly variable ever since 1928.

Amateurs and professionals are watching gamma carefully. After its rise to two and a half times its original brightness it has dropped to below normal. How far will it sink Will it immediately begin settling down to very slight variations around "normal" or will we see a prolonged perod of activity, and perhaps another maximum? Those who wish to see for themselves will find the following list of comparison stars convenient:

beta cas	2.4	delta Cas	2.3
epsilon cas	3.4	beta UMi	2.2
gamma UMi	2.5	alpha UMi	2.1-2.2

(The "W" of Cassiopeia reads from right to left "beta-alpha gamma delta epsilon" which may be remembered as the pronunciable syllables "bagde." Alpha Ursae Minoris is the Pole Star, beta and gamma are the Guardians, beta being that nearer the Pole.) Should gamma again approach first magnitude, more distant comparisons will have to be used. One must pick stars at about the same height above the horizon as gamma. Those in the Big Dipper, Cygnus, and Andromeda will serve at different seasons.

The second mystery star is Alpha, which was the second brightest variable in our skies before gamma displaced it. Miss Furness describes it as nothing less than "capricious." By dint of sustained observation amateur astronomer Noah W. MacLeod has given us a more detailed account of its actions in "Popular Astronomy." He finds that it is "normally" at magnitudes 2.3 and 2.4, often remaining there for long periods. Sometimes it rises to a maxmum of 2.2. Its minima vary between magnitudes 2.6 and 2.8 and may last a few hours or a week. Once the star dives below normal it is very nervous, until its return.

All irregular variables get redder as the grow fainter, change will vary with the observer, but in general, the but this one actually changes from yellow to red. This star will seem yellow when it is bright as beta and tinted with red when it is nearly as faint as delta.

LET US MAKE THIS A MERRY CHRISTMAS
WRITE A LETTER

It's only a few steps to the nearest mail box—write a letter! Take a little chunk of your heart and spread it over some paper; it goes, oh, such a long way!

Write a letter to you mother or father, to your sister, brother, sweetheart, loved ones. Are they dear to you Prove it with a letter! Write a letter and give them the same thrill you had when you last received that same kind of a letter. Think of the joy of opening the mail box and drawing out a warm envelope enriched with old familiar hand-writing! A personal letter—it's good to get one. So send one—write a letter!

Write a letter to the aged relative who hasn't many days to live, the friend of your father, the friend of your family, the one surviving link between your own present and past. Don't wait for that dear soul to die till you act. Act now with a message at love to cheer those last few days on earth. Sit down and *start writing!*

Write a letter to the author whose story gave you that delightful half hour last night. Write a letter to the cartoonist whose serial strip you avidly devoured this morning; to the teacher who inspired you twenty years ago; to the doctor who saved your baby's life; to your old employer to show him there was something more between you than a pay check. Be a human being—write a letter.

There's a man in public life you admire, believe in, rave about. Write him a letter of praise, of encouragement. "To be "with him in spirit" is not enough—show your spirit with a letter. We can't all be pioneers, crusaders, presidents—but we can help those brave men stay on the track and push through to a grand and glorious success if all we ever say is "Attaboy!" Write an "Attaboy" letter.

Write a letter and—give. Praise, encouragement, interest, consideration, gratitude. You don't HAVE to give these things; but the real letter is *the one you don't* HAVE *to write!*

The sweetest, gentlest and most useful of all the arts—letter writing. Great, grand characters like Washington, Franklin, Lincoln, and the greatest men of all nations, have been regular letter writers. Write a letter! Write it with pen, pencil, or typewriter. Use any kind of paper, any kind of spelling or grammar. It doesn't mater how you say it, and it doesn't even matter what you say ;its beauty, its *gold* lie in the pure fact that its a *letter!* Each mistake is another hand-clasp; every blot is a tear of joy.

Do you see a job? Do you smell an order? Is your mind on business? Write a letter. Then write another letter. No business, no individual, bulit on the "write-a-letter" rule ever failed. Because you simply can't fail, if you write a letter.

Try it, you'll like it. Great joy and many surprises are in store for you. You'll get letters back. You'll get help from unexpected sources. All that you gave in your letters will be returned to you a thousand-fold. For a letter is a 3-cent investment in bountiful good fortune.

Write a letter! Whether you say "Attaboy!" "Thanks" or "I love you." always remember; A LETTER NEEDS NO EXCUSE!

James Mangan,
Chicago, Ill.

DIAMONDS OF THE SKY

Have you ever watched for Jupiter and Saturn to come out,
In the early winter twilight, with the white snow all about ?
Have you ever seen a comet, moving westward through the stars,
Or hailed the re-appearance of the ruddy planet Mars ?
Do you know the thrill of welcoming your old friends to the sky :
Orion in the winter, with bright Sirius near by;
Arcturus in the springtime, in the summer Scorpio ;
And in the north, Capella, when autumn's fires glow ?
Wherever you may travel, in the northern hemisphere,
These, and other friends, will greet you, every fair day of the year.
You don't need to have an auto, or be rich, or even wise ;
One of life's supremest pleasures will be yours just through your eyes.

DECEMBER EVENING SKIES

December ushers in the first of the splendid winter constellations—Orion, Taurus, Gemini and Auriga. What a feast of scintillating stellar worlds they are bringing in to view! The eye at one glance eastward holds upon its retina seven first magnitude stars—Aldebaran, the fiery rey eye of Taurus; Betelgeux and Rigel in Orion; Pollux in Gemini; Capella in Auriga; Procyon in Canis Minor and the most brilliant of all stars, Sirius, in Canis Major while over the whole group, presiding with kingly majesty and overshadowing brilliancy, sits the planet Jupiter on his throne in Taurus.

Turn aside from the attractions of the fireside to-night and gaze upon this incomparable stellar spectacle. Let your imagination soar with the thought that these same stars were looked upon by the lowly Nazarene, the Caesers and the shepherds two thousand years ago; that thousands of years before them other bearers of hope, other Caesars and other shepherds gazed with awe and wondering admiration upon this scene; that millions of years, undoubtedly, before their time these same stars shone out upon the night as you see them now.

It is well to commune with nature once in a while, to have some thought of the great system of which our world is a part, to have a realising sense of our own littleness and we shall be better men and women for it.

BETELGEUZE

With a diameter of something like three hundred million miles, and a distance of one hundred and fifty light years, Betelgeuze is the big red star in the constellation of Orion.

Three hundred million miles, the car
Of thought alone, may compass thee,
But nothing human, wandering far,
Where planetary islands are,
A hundred millionth part could see.
We'd love to see you Betelgeuze,
But like a gnat against the wall,
All nearness magnitude must lose,
And so, great sun, we could but choose
This distance, or would miss you all.
This distance, ah, it is to dream
Such dreams as gods and men may share
Of Him, whose wondrous power a-gleam
Athwart the teeming, cosmic stream,
In matchless glory hung you there.
Faint not, my soul, that thou art small,
Each drop that gems the rainbow's rim,
With Betelgeuze awaits his call,
And every atom of them all,
Has equal interest to Him.

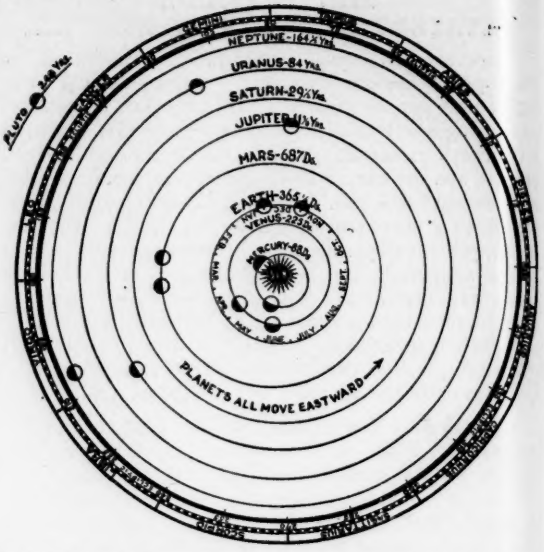
By Mary Merrick Smale.

PLANETARY CONFIGURATIONS

Eastern Standard Time

December, 1953

Dec.	1— 1:— PM	Mercury greatest elongation west, 20° 21'
Dec.	1—11:29 PM	Conjunction, Mars and Moon; Mars north 6° 52'
Dec.	2—12:16 PM	Conjunction, Neptune and Moon; Neptune north 7° 17'
Dec.	3— 7:15 AM	Conjunction, Saturn and Moon; Saturn north 7° 44'
Dec.	4— 4:01 PM	Conjunction, Mercury and Moon; Mercury north 6° 48'
Dec.	5— 4:33 AM	Conjunction, Venus and Moon; Venus north 5° 8'
Dec.	13— 3:— AM	Conjunction, Mars and Neptune; Mars south 0° 29'
Dec.	13—12:— PM	Opposition, Jupiter and Sun
Dec.	19— 5:44 PM	Conjunction, Jupiter and Moon; Jupiter south 3° 23'
Dec.	21—10:32 PM	Sun enters Capricornus; Solstice
Dec.	22—12:42 AM	Conjunction, Uranus and Moon; Uranus north 0° 18'
Dec.	22— 3:— AM	Mercury in descending node
Dec.	27— 3:— AM	Venus in descending node
Dec.	29— 9:46 PM	Conjunction, Neptune and Moon; Neptune north 7° 26'
Dec.	30— 5:36 PM	Conjunction, Mars and Moon; Mars north 6° 38'
Dec.	30— 8:31 PM	Conjunction, Saturn and Moon; Saturn north 7° 50'



Orbits and Heliocentric Movements of the Planets for Dec., 1953

AMATEUR'S FORUM

By IRVING L. MEYER, M. S.

December, 1953

THE SUN: moves from Scorpio into Sagittarius, marking the deepest penetration into the southern heavens on the 21st. Distance the 1st is 91.6 million miles, and the 31st is 91.4 million miles.

THE MOON: is closest to the earth the 16th at 229,000 miles distance:

The Moon's phase (E. S. T.):

New Moon	December	6 at 5:48 AM
First Quarter		13 at 11:30 AM
Full Moon		20 at 6:43 AM
Last Quarter		28 at 12:43 AM

MERCURY: can be observed in the morning sky shortly before sunrise for the first few days of the month. It reaches greatest elongation west of the Sun, 20° 21', on the 1st. As seen in the telescope on that date, Mercury will be slightly gibbous, and of apparent diameter 7". Distance the 1st is 92 million miles, and the 31st is 131 million miles. Travels from Libra through Scorpio into Sagittarius.

VENUS: in the morning sky is not well placed for observation, as it rises jujst before the sun. It moves from Libra through Scorpio and into Sagittarius. Distance the 1st is 152 million miles, and the 31st is 157 million miles.

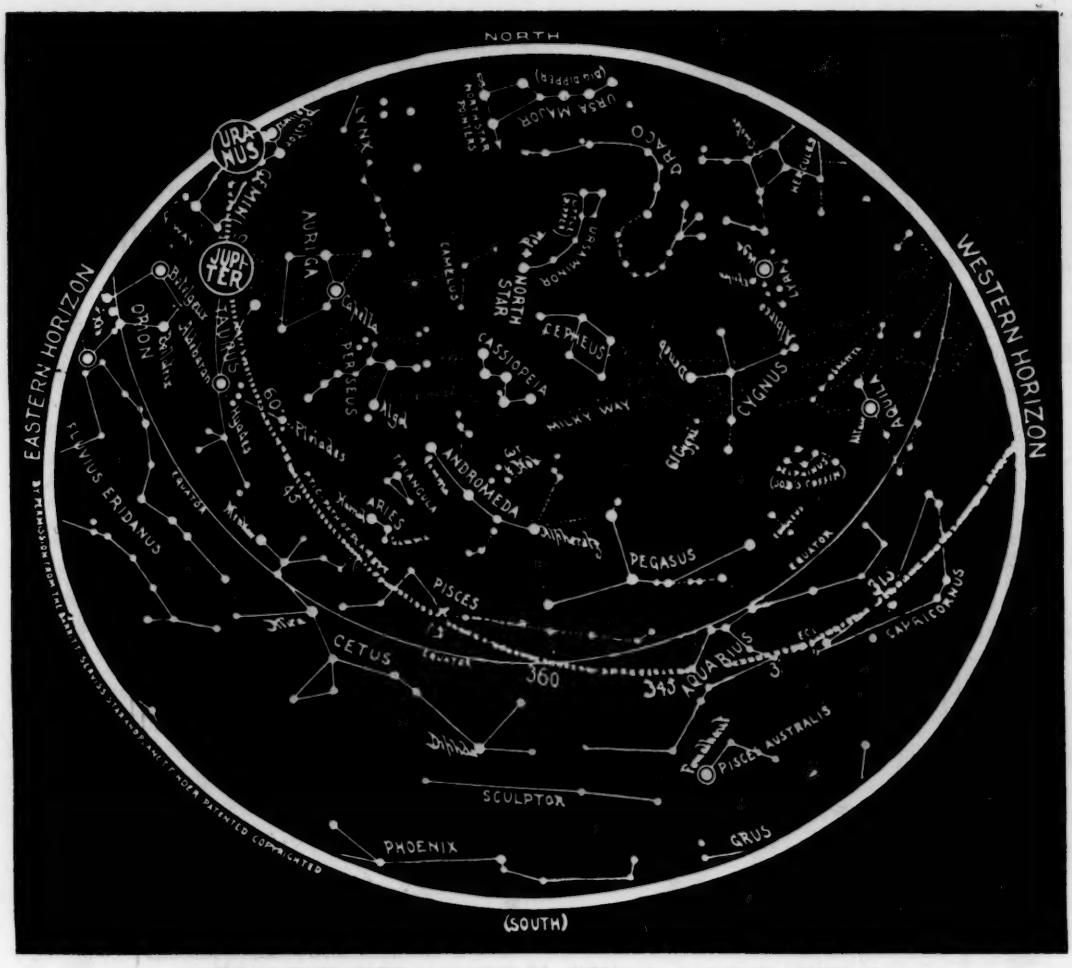
MARS: is in the morning sky in Virgo. Although still pretty far away, this planet is narrowing the distance from the earth. On the 1st, distance is 196 million miles, apparent diameter 4.4", and magnitude 1.8; on the 31st, distance is 171 million miles, diameter is 5", and magnitude 1.6.

JUPITER: comes to opposition the 13th in Taurus. This planet is a great sight in the telescope. The polar flattening, the cloud bands, and the four bright satellites are readily picked out. On the 13th, dstance is 382 million miles, magnitude 2.3, polar diameter 44.7", and an equatorial diameter 47.9".

SATURN: is not well placed for observation. It is in Virgo in the morning sky, rising a few hours before sunrise. It will be much better placed later in the season. Distance the 15th, 968 million miles.

URANUS: is just visible to the naked eye on a moonless night. Magnitude is 6, but a moderate-sized telescope will reveal its neat, small greenish disc. It is well placed for observation in Gemini, and is about to come to opposition. Distance the 15th is 1657 million miles.

NEPTUNE: is moving slowly in the area in Virgo near Spica. at magnitude 8 this planet is much too faint to be seen without optical aid. Though not yet well placed for observation, conditions are improving. It is near Saturn. Distance from the earth the 15t is 2854 million miles.



AT 9:00 P. M., NOV. 1; 8:00 P. M., NOV. 15; 7:00 P. M., NOV. 30,

This map is arranged specifically for Latitude 40 North—New York—but is practical for ten or fifteen degrees north or south of this latitude anywhere in the United States, the southern portion of Canada and the northern portion of Mexico and for corresponding latitude in Europe.

THE PUBLISHER OF THE MONTHLY EVENING SKY MAP will appreciate the kindly interest of its subscribers in sending the names of those whom they think to be interested in the study of the "STARS" we will take great pleasure in sending them sample copies.

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It should be emphasized that each instrument will produce highly accurate forecasts in all parts of the temperate zone, although its accuracy will be greatest in the area for which it is designated. When ordering your *Weather Guide*, specify the area for which it is desired. NORTH WEST, or SOUTH WEST, NORTH CENTRAL, or SOUTH CENTRAL, GREAT LAKES NORTH EAST or SOUTH EAST.

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HAVE YOU SEEN THE NEAREST ★ STAR ★
IN THE NORTHERN HEMISPHERE 61 CYGNI?

It is on your meridian at 21 hours 5 minutes Sidereal Time, and 6½ degrees below Deneb which crossed 25 minutes before. It is 6th magnitude and beautiful double.

Your Sidereal Time is always the R. A. of your meridian, and when you know where that is your Sidereal Clock and Star List will give you the name of any star crossing it. You can pick out your meridian by checking the R. A. of a familiar star against the Sidereal Clock.

WHAT IS THE LOCAL SIDEREAL TIME?

At the Hayden Planetarium, New York, April 15th, at 9 P. M. E. S. T....

9 p. m.	21 h 00 m 00.0 s
Add zone time 75°/15	5 h 00 m 00.0 s
Greenwich or U. T.	26 h 00 m 00.00 s
or 1953, Apr 16th	02 h 00 m 00.0 s*
1953, Apr. 16th Sid T. Oh	13 h 35 m 21.8 s*
Conversion of mean to Sidereal time for 2 hrs.	19.7 s*
Sum of *'s	15 h 35 m 41.5 s
Subt. long NYC	4 h 56 m 00.0 s
Local Sid Time (NY)	10 39 m 41.5 s

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Astronomers have two sources of data from which to compute Local Sidereal Time, The American Ephemeris, published at Washington ($3.75) Superintendent of Documents and The Observer's Handbook a small volume published by the Royal Astronomical Society of Canada, 3 Willcocks St., Toronto 60 cents. Greenwich Sidereal Time in the Ephemeris pages 2 to 16 and in the Handbook on page 7.

Local Sidereal Time which is required in the observatory can be computed from two formulas published in advertising in The Monthly Evening Sky Map and the Observer's Handbook or will be sent to any address upon request and with an example worked out for that location free of charge. Information in the method of using Sidereal Time will also be sent free.

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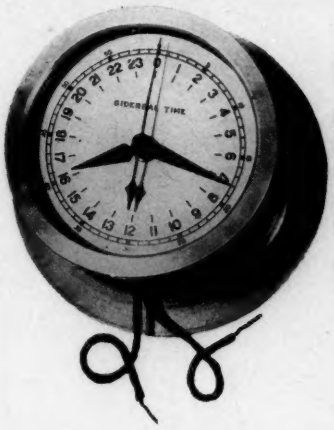

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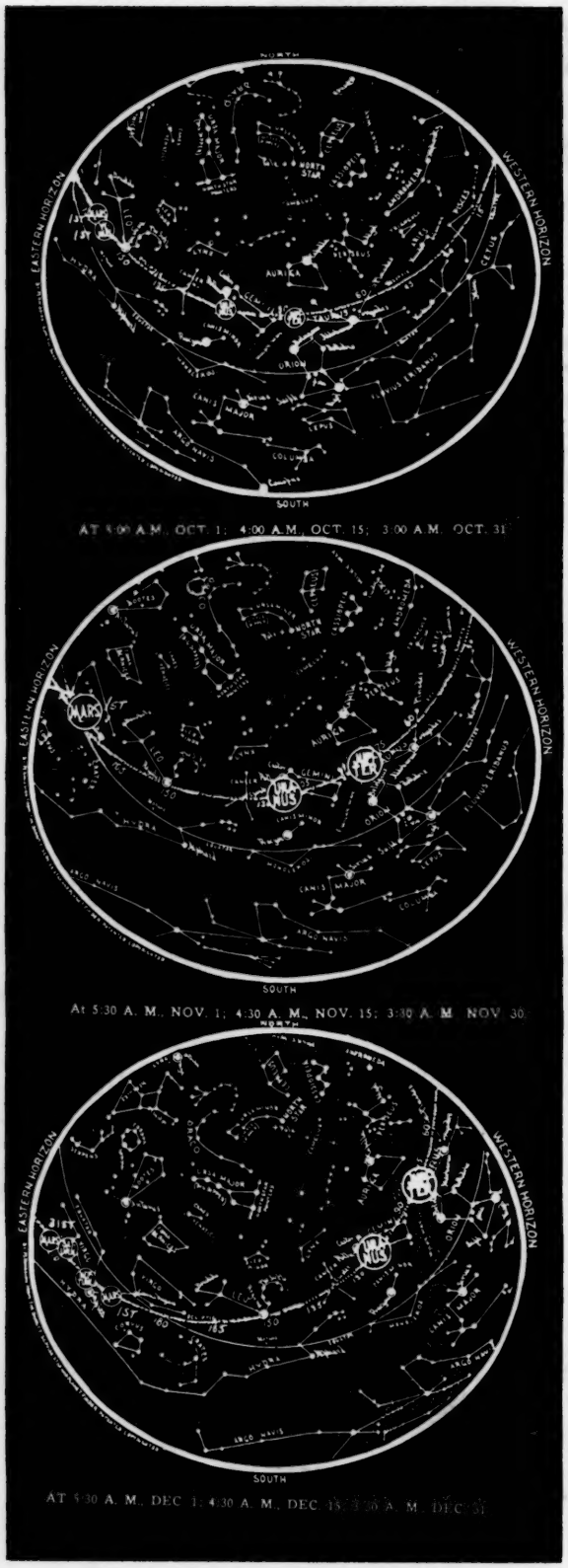
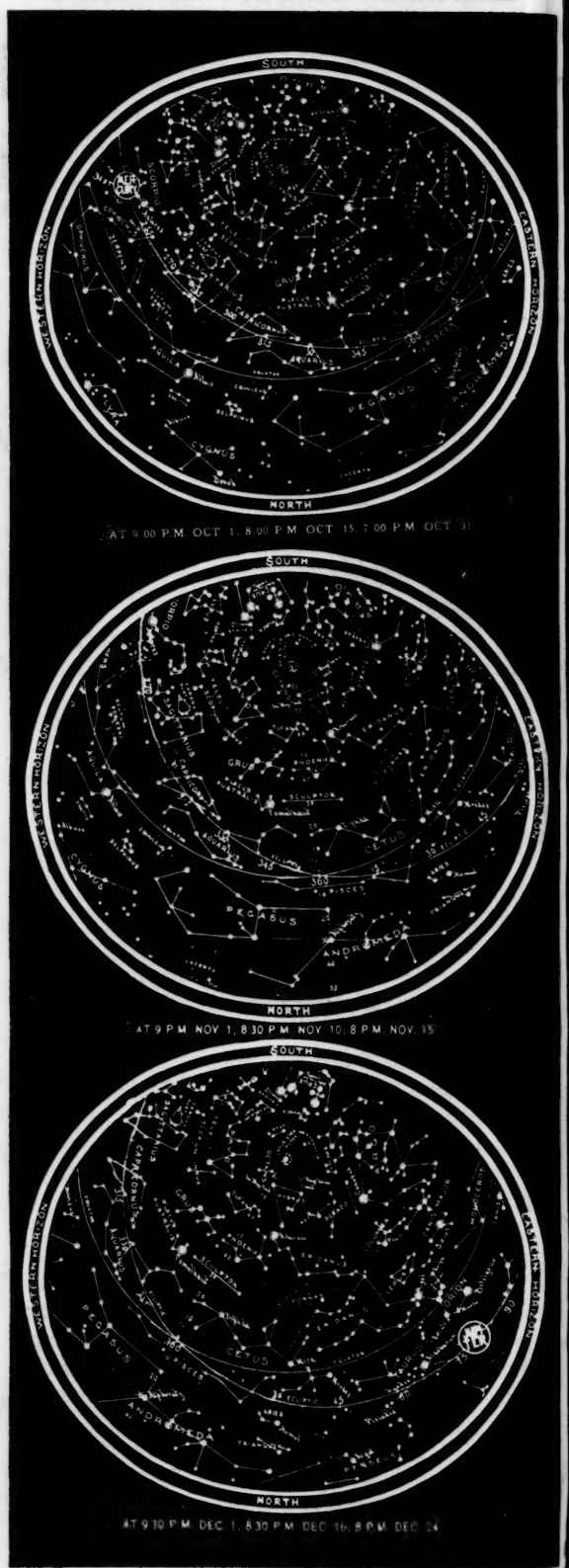
The Monthly Evening Sky Map

MORNING SKIES FOR OCT.-NOV.-DEC.



EVENING SKY SOUTHERN HEMISPHERE



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